

# **A Review of the Link between Obesity and Increased Fast Food Consumption in Saudi Arabia**

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## **Abstract**

A review of available literature was conducted to explore scholarly work that explores any potential link between obesity and fast food consumption in the Kingdom of Saudi Arabia. Obesity and obesity-linked illnesses such as diabetes and hypertension are on the increase in Saudi Arabia, with experts going as far as calling it a public health issue in the country. In order to explore the link between obesity and fast food consumption, with a focus on Saudi Arabia, a search was conducted using specific search terms input into the open source search engine Google Scholar. Over 200 results were reviewed in order to narrow down specific works, which was done using a set of inclusion and exclusion criteria. The narrowed down list of works was explored in detail to study what they found on the link between obesity and fast food consumption. A vast majority of the studies reviewed found a tangible link between obesity and overweight and increasing rates of fast food consumption amongst Saudi Arabians. In particular, several of the studies focused their attention on the youth in the country, be it primary school level, amongst adolescents or within young adults.

**Keywords:** Obesity, Fast Food, Saudi Arabia, Review

## **Introduction**

The aim of this review is to examine existing scholarly literature that considers a potential link between obesity levels and increasing rates of fast food consumption, with a geographic focus on the Kingdom of Saudi Arabia.

In order to find relevant literature, a search was conducted on the subject matter of this review. Search terms were devised and entered into the open source search engine Google Scholar. A number of inclusion and exclusion criteria were then used to rule out literature not pertaining to the topic at hand. The chosen list of scholarly works were then further analysed to examine the types of conclusions reached and to observe any commonalities or patterns visible.

## **Background**

The Kingdom of Saudi Arabia is presently dealing with high levels of obesity and obesity-related illnesses amongst its populace. A 2016 report produced by the government of Saudi Arabia clearly linked obesity to the rise in occurrence in the country of many non-communicable diseases, including type 2 diabetes, hypertension, heart disease and some cancers (Obesity Control Program, Ministry of Health, 2016). Obesity is now considered a public health issue in Saudi Arabia due to its high prevalence amongst the general populace. As many as 28.7% and 30.7% of individuals 15 years and older are overweight and obese, respectively. This means that collectively, overweight and obesity affects as much as 59.4% of the total population of Saudi Arabia (Ministry of Health, 2016). Amongst adult males, the prevalence of obesity is around 24.1% and amongst adult females, it is 33.5%. Similarly, 33.4% of adult males are overweight

and 28% of adult females are overweight (Ministry of Health, 2016). The high rates of overweight and obese people within the country have led to government issuing health advisories, such as plans for increased physical activity and exercise, as well as for healthier eating habits amongst the population. The result of increase in population with obesity has been a rise in the illnesses mentioned above, especially diabetes. According to the World Health Organization, 14.4% of people in Saudi Arabia have diabetes, with 14.7% of males having the disease and 13.8% of females having the disease (World Health Organization, 2016).

An increase in consumption of fast food has been linked to rising levels of obesity. Larger portion sizes and an increase in consumption of fast food is thought to cause a rise in obesity, especially amongst children (T.H. Chan School of Public Health, n.d.). Due to its high palatability, high sugar content, and low prices, fast food is an attractive option. However, amongst children and adults, fast food also contributes to over-eating and weight gain (T.H. Chan School of Public Health, n.d.). An increase in fast food consumption has been linked to higher body mass index (BMI), higher body fat percentage, and increased chances of being obese (Fraser, et al., 2012).

## **Methodology**

A search was conducted in order to find relevant literature on the subject of the link between obesity and increased fast food consumption in Saudi Arabia. Designing a search protocol helped to streamline the process of finding relevant literature, by making it a step-by-step progression. First, a number of search words and phrases were designed that could be input into databases. Here, an attempt was made to find as many relevant search terms as possible in order to find the broadest mix of research studies. Then, the search terms were entered into search engines meant for scholarly works. First, the open source engine Google Scholar was used. Once the search terms were entered, the resulting hits produced from the search were sorted through. A set of parameters were used to narrow down these results in order to settle on no more than a few of the most relevant studies. This step was taken due to the relatively narrow scope of a systematic review article. These finalized research studies were analysed in detail to understand what they found on the link between obesity and increasing fast food consumption.

As a first step, the following search terms were designed. Each of them was chosen keeping in mind the topic of the review.

- Obesity and fast food in Saudi Arabia
- Determinant of obesity in Saudi Arabia
- Factors influencing rise of obesity in Saudi Arabia
- Impact of fast food on health in Saudi Arabia

The search engine Google Scholar was used to find relevant search results. Google Scholar is affiliated to the search engine Google, and is an open source search engine that only returns journal articles as results. As it is an open source engine, the hope was to be able to find the maximum number of results, regardless of which journal or database they were found in. Each of the above listed search terms were entered into Google Scholar. Each of the search terms produced hundreds of results. Due to the limited amount of time available, and the relatively limited scope of a review article such as this, only a certain number of results for each search term were examined. Each search returned 10 results per page. For each of the above search

terms, only 5 pages of results were examined. Thus, at 4 searches and 5 pages each, with 10 results per page, a total of 200 results were looked at more carefully. Some of the articles were found in more than one search.

With 200 results, the next step was to narrow down the list to a more manageable number of search results that would be analysed further. In order to do so, the following set of parameters were used.

- Only research studies focused on Saudi Arabia were considered. Some of the search terms returned results for other countries, but unless Saudi Arabia was sole country or one of the countries mentioned, the results were not considered.
- Only searches that has obesity as one of the factors were considered.
- Only searches that looked into increasing fast food consumption in Saudi Arabia were considered.
- Searches that looked into any type of linkage between the above two factors, i.e. obesity and fast food consumption, in the context of Saudi Arabia were given priority. However, studies that did not fit exactly into this last criterion were also considered.

Using these parameters, a number of studies were shortlisted for further examination and analysis. These results are explained in detail in the following section.

## Results

It was evident from conducting the literature review that the area of increased obesity and increasing occurrences of obesity-linked illnesses, such as diabetes and hypertension, have been the subject of several research works.

Obesity is rising, in particular, amongst children, causing alarm to Saudi authorities. A cross-sectional study conducted in 2015 among school children in Riyadh city, with a sample population of 7930 children, revealed that the overall prevalence of overweight was 13.4% (14.2% for girls and 12% for boys) and obesity was 18.2% (18% for girls and 18.4% for boys) (Al-Hussaini, et al., 2019). This also represented a significant increase in childhood obesity and overweight when compared with World Health Organization's reported national prevalence rate of obesity in 2004, which was 9.3%. This study revealed nearly double the rate of prevalence of obesity, in just a 11-year period, from 2004 to 2015 (Al-Hussaini, et al., 2019).

A national survey conducted on chronic diseases and their risk factors in Saudi Arabia found diet to be associated with obesity. With around 10,375 Saudis surveyed, it found that around 28.7% were obese, and that the prevalence of obesity was higher amongst women when compared to men (Memish, et al., 2014).

Several studies used adolescents as their target demographic to explore the linkage between lifestyle factors such as diet (which includes the increased consumption of fast food) and obesity. Al-Hazaa et al (2012) focused on Saudi adolescents aged 14 to 19 in exploring the link between lifestyle factors (including physical activity, sedentary behaviours, and dietary habits), and obesity (Al-Hazaa, et al., 2012). A school-based cross-sectional study was conducted in the cities of Al-Khobar, Jeddah and Riyadh. Participants were 1400 males and 1506 females in the age range of 14-19. The survey of the students included measurements such as their body mass index (BMI), waist circumference and weight, as well as factors such as their dietary habits. The

results of the study revealed that obese male and female adolescents were significantly less active and had less favourable dietary habits. In taking the survey, the study explored not only frequency of meals, but also how often per week the interviewees consumed sugar-sweetened drinks, ate donuts/cakes/other types of sweets, consumed energy drinks, and ate fast food (including both 'Western' fast foods, and Arabic fast foods such as *shawarma*). Mahfouz et al (2007) studied obesity and related behaviours amongst adolescent school boys in one city in Saudi Arabia. 2696 school boys aged 11-19 were surveyed in Abha city of Saudi Arabia. The results of the survey revealed that around 16% of those surveyed were obese or overweight, with the authors of the study going so far as to classify obesity amongst this age group to be a public health problem. The study also surveyed dietary habits and found that 20.7 and 13.9% of the boys surveyed did not consume any fresh fruits or fresh vegetables in the week prior to the survey. Moreover, as many as 54% of the boys reported drinking at least one soda per day. Around 30.3% ate fast food at least once per day (Mahfouz, et al., 2008).

Washi & Ageib (2010) in their study reinforced the linkage between poor dietary habits and an increase in overweight and obesity amongst adolescents in Saudi Arabia by focusing on the nutritional status of 13-18-year olds in Jeddah city (A.Washi & B.Ageib, 2010). Their cross-sectional study of 239 adolescents in the afore-mentioned age group found that the carbohydrate and fat intakes were higher, and calcium, iron, and zinc intakes were lower in the group, when compared with the Dietary Reference Intake (which is a set of recommended dietary nutrient allowance for healthy living). The authors linked this poorer diet to an increased consumption in unhealthy foods, such as fast foods.

A study of that examined overweight and obesity in relation to the dietary habits and socio-demographic characteristics of male primary school children in Al-Hassa found that frequent consumption of fast food was a predictor of obesity and overweight amongst the male school children, alongside other factors such as missing and or infrequent intake of home-made breakfast, low daily consumption of fruits, vegetables, milk and other dairy products, and frequent consumption of sweets/candy as well as sodas (Amin, et al., 2008). Similarly, in a study focused on adolescent and young adult girls in Riyadh, exploring the link between trends in fast food consumption and obesity amongst this target group. A cross-sectional survey undertaken with 127 adolescent girls aged 13-18 and 69 young adult women aged 19-29, found that those eating large portions of fast-food had significantly higher mean waist circumference and hip circumference. The study also found that 79.1% of those surveyed ate fast food at least once per week (ALFaris, et al., 2015).

However, in contrast Al-Rukban (2003) found that while there was a strong association between obesity and family history and genetics, as well as an association of obesity and a lack of exercise, there was no statistical difference between obese and non-obese adolescents when it came to consumption of fast food and soft drinks (Al-Rukban, 2003). This result is different from the previous studies outlined that conclusively link poor dietary habits and greater consumption of fast food with obesity amongst adolescents in Saudi Arabia.

Another study focused itself on female university students in Saudi Arabia, examining the relationship between fast food consumption and body mass index of 141 female students at King Saud University in Riyadh. The study found that there was no significant relationship between fast food consumption, body mass index and the pattern of fast food consumption. It also found that there was no significant relationship between portion size of other types of food and body mass index. However, the study also found that 25% of the female students surveyed were obese

or overweight, with 74.5% reporting fast food consumption rate of 1-2 times per week (Alfawaz, 2012). Interestingly another study that focused on a very similar group of individuals found a different result. A study conducted on 276 female students aged 18-25 from King Faisal University found that around 29.7% of them were obese or overweight and 47.1% of students reported eating fast food two or more time per week. The study also found a significant correlation between body mass index and frequency of consumption of fast food as well as a significant association of obesity and overweight with those students who reported a frequency of fast food consumption two or more times per week (Al-Otaibi & Basuny, 2015).

## Discussion

There were a number of observations that were visible upon conducting the review of available literature on this subject that will be discussed in this section. It was clear from all of the research works that found a link between fast food consumption and obesity that fast food consumption alone cannot be said to be a sole factor in greater rates of obesity in Saudi Arabia. Most studies that confirmed the link between obesity and fast food consumption, stated that the latter was one of the factors, and was often in conjunction with other factors, such as genetics and lifestyle issues, including lack of adequate exercise and a tendency towards a sedentary lifestyle. In most studies, fast food was often only one of the lifestyle factors considered. Moreover, even amongst dietary habits, increased consumption of fast food was only one of the factors. Other factors were lack of fruits, vegetables and dairy in diets, greater amounts of processed sugar, and missing out on important meals such as breakfast.

Interestingly, some studies focused on only one gender, choosing to explore either only primary school-aged boys or male adolescents, or only on female adolescents or young adult females. There were studies that focused on age group and surveyed both males and females in that age group, rather than separating out under gender. Studies also primarily focused on the youth in Saudi Arabia. Most studies' age-wise focus ranged from primary school children and adolescents, to university students and other types of young adults. Perhaps due to the fact that young people are generally considered to be more healthy, findings of obesity and overweight among significant numbers of them was an abnormal finding. Particularly alarmed by the rising obesity amongst children and young adults, several of the authors of the studies went as far as to term the increasing rates of obesity and its linkage to factors such as fast food consumption, other types of poor dietary habits, sedentary lifestyles and lack of adequate exercise, to be akin to a crisis, especially given the rising rates obesity-linked illnesses in Saudi Arabia on the rise. Many of the authors agreed with international experts in their classification of the rising level of obesity to be a trend that amounted to a public health crisis that required urgent intervention on the part of authorities.

It was also interesting that most of the studies came to similar conclusions. Almost all the studies concluded with recommendations for action, pointing to the need for greater resources to combat the issue of obesity. Authors called for public health campaigns that promoted better lifestyles, particularly clean eating habits. There was also a consensus that there was an urgent need for greater awareness, particularly amongst the youth in the country of Saudi Arabia, on the importance of better dietary habits and the importance of having adequate daily exercise to combat the issues of obesity and the illnesses linked to it.

## Conclusion

The systematic review showed that the subject of the linkage between fast food consumption and obesity has been well-documented by scholars. This is an area in which a significant amount of research has been conducted, and continues to be conducted. This may primarily be due to the fact that Saudi Arabia is dealing with what authorities have termed as a public health crisis in rising obesity levels. As the subject is generating a lot of interest in the country and has been for a number of years, it is being explored heavily by academics and scholars. The review not only explored some of the works on the subject, but also brought to the forefront some of the trends in the scholarly literature on the linkage between fast food consumption and obesity in Saudi Arabia.

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